CLAIMS

1. A gas oil fraction hydrotreatment process characterized by using a gas oil fraction with a sulfur content of 0.8-2 % by mass and a total aromatic content of 20-35 % by volume as the feed oil, and subjecting said feed oil to hydrotreatment in the presence of a hydrogenation catalyst comprising at least one metal from among Group 6A metals and at least one metal from among Group 8 metals as active metals, and under reaction conditions with a reaction temperature of 330-390°C, a hydrogen partial pressure of 12-20 MPa and a liquid hourly space velocity of 0.1-1 h^{-1}, to obtain an ultralow sulfur and low aromatic gas oil fraction having a sulfur content of not greater than 1 ppm by mass and a total aromatic content of not greater than 1 % by volume.

2. A gas oil fraction hydrotreatment process according to claim 1, characterized in that said feed oil has a monocyclic aromatic content of 9-19 % by volume, a bicyclic aromatic content of 8-13 % by volume and a tricyclic or greater aromatic content of 0.5-4 % by volume, and said ultralow sulfur and low aromatic gas oil fraction has a bicyclic or greater aromatic content of not greater than 0.4 % by volume.

3. A gas oil fraction hydrotreatment process according to claim 1 or 2, characterized in that the ratio of the feed oil and the hydrogen gas co-feeded (hydrogen/oil ratio) for said hydrotreatment is 300-900 NL/L.

4. A gas oil fraction hydrotreatment process according to any one of claims 1 to 3, characterized in that said hydrotreatment is carried out in a hydrotreatment apparatus provided with at least one reactor, and the volume of hydrogen gas supplied at the inlet of the reactor into

which said feed oil is initially introduced, of the hydrogen gas accompanying the feed oil for said hydrotreatment, is not greater than 60 % by volume of the total hydrogen gas supply volume.

5. A gas oil fraction hydrotreatment process according to any one of claims 1 to 4, characterized in that said feed oil has a paraffin content of 30-60 % by volume and a naphthene content of 25-60 % by volume, while said ultralow sulfur and low aromatic gas oil fraction has a paraffin content of 30-60 % by volume and a naphthene content of 40-70 % by volume.

6. A gas oil fraction hydrotreatment process according to any one of claims 1 to 5, characterized in that the yield of fractions having a lower boiling point than the boiling point of said feed oil in said hydrotreatment is not greater than 50 % by volume of the total feed oil.

7. A gas oil fraction hydrotreatment process according to any one of claims 1 to 6, characterized in that said hydrogenation catalyst is one having at least one type of metal from among Group 6A metals and at least one type of metal from among Group 8 metals as active metals supported on a porous support.

8. A gas oil fraction hydrotreatment process according to any one of claims 1 to 7, characterized in that said active metals are any combination selected from the group consisting of cobalt-molybdenum, nickel-molybdenum, nickel-tungsten and cobalt-nickel-molybdenum.

9. A gas oil fraction hydrotreatment process according to any one of claims 1 to 8, characterized in that the total amount of said active metals in said hydrogenation catalyst is at least 22 % by mass of the total catalyst, in terms of oxides.

10. An ultralow sulfur and low aromatic gas oil fraction having a sulfur content of not greater than 1 ppm by mass and a total aromatic content of not greater than 1 % by volume, characterized by being obtained by a process according to any one of claims 1 to 9.

11. A gas oil composition characterized by comprising an ultralow sulfur and low aromatic gas oil fraction having a sulfur content of not greater than 1 ppm by mass and a total aromatic content of not greater than 1 % by volume, and obtained by a process according to any one of claims 1 to 9.